

ORIGINAL

Before The  
Federal Communications Commission  
Washington, D.C. 20554

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Federal Communications Commission  
Office of Secretary

In the Matter of )

Advanced Television Systems )  
and Their Impact Upon the )  
Existing Television Broadcast )  
Service )

MM Docket No. 87-268

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To: The Commission

**SUPPLEMENT TO PETITION FOR RECONSIDERATION**

The University of Houston System ("University"), licensee of noncommercial educational television station KUHT, Channel 8, Houston, Texas, by its counsel, hereby supplements its May 2, 1997 Petition for Reconsideration ("Petition") of the *Sixth Report and Order* in MM Docket No. 87-268, FCC 97-115 (released April 21, 1997) ("*Sixth R&O*"), insofar as the *Sixth R&O* allocates Channel \*53 as the paired digital TV channel for KUHT's current Channel \*8. As described more fully in the Petition, requiring the University to use Channel \*53 would cause substantial and unnecessary hardship. The University stated its belief that Channel \*9 could be used instead. The purpose of this Supplement is to provide further information in support of the substitution of Channel \*9 for Channel \*53 as the paired DTV channel for KUHT.

The University's consulting engineers, Kessler & Gehman Associates, Inc., have now studied the use of Channel \*9 at KUHT's DTV allotment. As reflected in the attached Engineering Statement, KUHT could operate on Channel \*9 with ERP of up to

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8.4 kw from its existing transmitter site and with its existing antenna height. This is substantially below the 20.9 kw proposed for this same Channel \*9 by MST. However, in the engineer's estimation, the lower power is necessary to reduce potential interference to co-channel NTSC Station KTRE, Lufkin, Texas, which would be spaced 215.1 km apart rather than the ideal 273.6 km spacing.

Also, representatives of KUHT have met with Civic Communication Corp. ("Civic"), licensee of Station KTRE, about this matter. Civic has given its tentative agreement to KUHT's use of Channel \*9 as its DTV allotment, with ERP of up to a maximum of 8.4 kw. KUHT has agreed to resolve interference problems that might result to KTRE as a result of KUHT's operation on Channel \*9, including potential power reductions to 1.3 kw.<sup>1/</sup> KUHT hopes to be able to provide documentation of Civic's consent in the near future.

For the foregoing reasons, and for the reasons specified in the Petition, the University requests reconsideration of the *Sixth R&O* to the extent that it allocates Channel \*53 for KUHT in Houston, and urges that Channel \*9 be allocated instead.<sup>2/</sup>

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<sup>1/</sup> KUHT's engineer has determined that, even with ERP of 1.3 kw, the University's DTV station on Channel \*9 could provide adequate coverage of the Houston metropolitan area.

<sup>2/</sup> KUHT's specific proposal is subject to the FCC's anticipated release of OET Bulletin 69, which will provide detailed information on a variety of the engineering calculations underlying coverage and interference considerations. KUHT reserves the right, if necessary, after the release of Bulletin 69, to revise its proposal accordingly.

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Respectfully submitted,

UNIVERSITY OF HOUSTON SYSTEM

By: Todd D. Gray  
Todd D. Gray  
Its Attorney

Dow, Lohnes & Albertson, pllc  
1200 New Hampshire Avenue, N.W.  
Suite 800  
Washington, D.C. 20036-6802  
202-776-2571

June 13, 1997

ENGINEERING STATEMENT OF  
ROBERT GEHMAN, JR.  
ON BEHALF OF  
THE UNIVERSITY OF HOUSTON SYSTEM  
LICENSEE OF TV BROADCAST STATION  
**KUHT, HOUSTON, TX**

The University of Houston System ("University") is licensed to operate KUHT on channel 8 with an ERP of 316 kW at an antenna height of 584 meters above mean sea level ("AMSL"). The FCC allocated channel 53 for DTV service using an ERP of 1,000 kW at an antenna height of 564 meters above average terrain ("AAT") to replicate the licensed channel 8 Grade B coverage contour. This will require the purchase of a new transmitting plant consisting of a high power UHF DTV transmitter, large coaxial transmission line or waveguide, and a medium gain transmitting antenna. The UHF DTV transmitter will consume substantially more power than the present VHF transmitter and it is not known if the existing tower can support the new transmission line and antenna. Furthermore, DTV channel 53 is not within the "core" channels planned for television broadcasting after the transition from NTSC to DTV is complete. Therefore, at the end of the transition period KUHT would change to channel 8 for its permanent DTV operation requiring the purchase of another new DTV transmitter. At that time the University would be left with a relatively new UHF DTV transmitting plant which would be very costly to decommission, and for which it has absolutely no use.

Studies have shown that other VHF channels may be available for DTV use during the transition period after which KUHT could revert to channel 8 for its permanent DTV operation. In fact, the original table proposed by the FCC assigned channel 9 to KUHT for DTV operation with an ERP of 8.4 kW. With only one exception, channel 9 meets all of the co-channel and adjacent channel mileage separations for DTV to DTV and for DTV to NTSC stations and allotments. I have searched the DTV channels in Table 1 of the *Sixth Report & Order* and found no co-channel or adjacent channel allotments within 275 km of the KUHT transmitter site. I also searched the NTSC channels in the FCC TV database dated April 15, 1997, as follows:

\*\*\*\*\* TV CHANNEL SPACING STUDY \*\*\*\*\*

Job title: HOUSTON - KUHT  
Channel: 9  
Database file name: f:\tvdata\tv970415.edx

Latitude: 29 34 28  
Longitude: 95 29 37

CH	Call	Record No.	City	ST	Z	STS	Bear.	Dist.	Reqd. Dist.	Result
9o	KTRE	5673	LUFKIN	TX	3	L	17.8	215.1	273.6	-58.5
8-	KUHT	5957	HOUSTON	TX	3	L	.0	.0	146.4	-146.4
9-	KLRN	6943	SAN ANTONIO	TX	3	L	265.0	279.2	273.6	5.6

\*\*\*\*\* End of channel 9 study \*\*\*\*\*

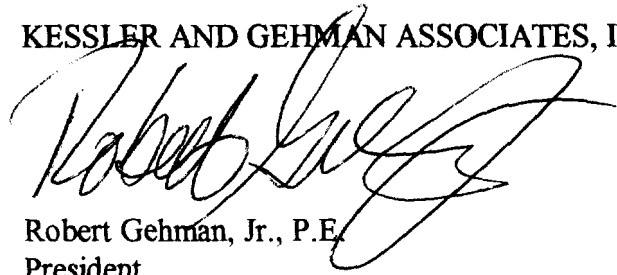
Note that the only short-spacing is to KTRE, channel 9, in Lufkin, TX. Figure 1 shows the KTRE Grade B F(50,50) contour computed in accordance with the current FCC Rules. In addition, the (“+”) shaded areas represent the areas where the desired-to-undesired (“D/U”) ratio from KUHT is less than the required D/U ratio of 34 dB to avoid co-channel interference. The study was based on KUHT with and ERP of 8.4 kW at the licensed antenna height and KTRE with its licensed facilities. The study used the Longley-Rice v1.2.2 propagation algorithm with F(50,10) for the KUHT interfering signals and F(50,50) for the KTRE desired signals. As shown, KUHT would cause predicted interference within the KTRE Grade B contour. However, as shown on Figure 2, the same Longley-Rice propagation algorithm predicts that much of the same area within the KTRE Grade B contour that would receive interference from KUHT would not receive a Grade B (56 dBu) signal from KTRE (“+” shaded areas) and would therefore not actually be new interference. In any event, I understand that the licensee of KTRE has agreed to supply a letter of consent for KUHT to operate on channel 9 with an ERP of 8.4 KW at the licensed antenna height, provided the University agrees to reduce the ERP of KUHT to as low as 1.3 kW if interference is encountered within the KTRE Grade B contour. The ERP value of 1.3 kW was selected because studies show no significant interference is caused within the KTRE Grade B contour.

Figure 3 shows the licensed Grade B coverage contour of KUHT based on the prediction methods in the FCC Rules and the area within the contour that is predicted to be less than Grade B based on Longley-Rice v1.2.2. Figure 4 shows the same licensed KUHT Grade B contour (outer contour) and the proposed KUHT channel 9 DTV 36 dBu F(50,90) noise-limited contour (inner contour) based on an ERP of 8.4 kW at the licensed antenna height. Although the DTV contour is smaller, the Longley-Rice v1.2.2 algorithm (areas clear of “+” shading) shows the DTV coverage to be essentially the same as the licensed channel 8 coverage area shown on Figure 3. Figure 5 again shows the licensed KUHT Grade B contour (outer contour) for comparison to the KUHT channel 9 DTV 36 dBu F(50,90) noise-limited contour (inner contour) based on an ERP of 1.3 kW at the licensed antenna height. The Longley-Rice v1.2.2 algorithm (areas clear of “+” shading) shows that the DTV operation with and ERP of 1.3 kW, should that become necessary to eliminate interference to KTRE, will still provide good coverage of the Houston area. Although the *Sixth Report & Order* does not contain specific information about city grade coverage requirements, there is no doubt that the DTV operation with 1.3 kW ERP will adequately serve Houston.

The coverage and interference studies made in connection with this engineering statement were based upon information from the *Sixth Report & Order*. The *Sixth Report & Order* states that *OET Bulletin No. 69* will contain the methodology for making interference studies, but the *Bulletin* has not yet been published. Therefore we reserve the right to make adjustments in the final operating parameters of KUHT to comply with the methodology of the bulletin.

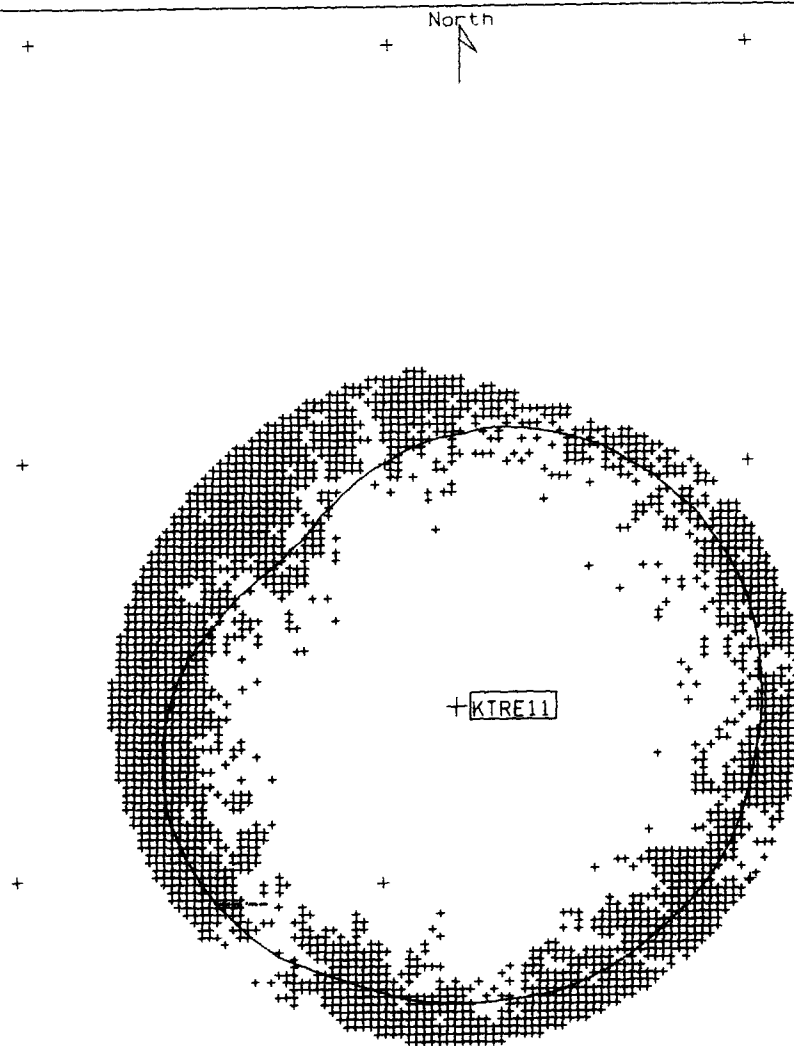
This engineering statement was prepared by Robert Gehman, Jr., who states under penalty of perjury that he is a professional engineer registered in the states of Florida, Maryland, and Mississippi; he is president of Kessler and Gehman Associates, Inc., telecommunications consulting engineers; his qualifications are a matter of record with the Federal Communications Commission having been presented on numerous occasions during the past 25 years; and the information contained in this statement is true to the best of his knowledge and belief.

KESSLER AND GEHMAN ASSOCIATES, INC.

A large, stylized handwritten signature in black ink, appearing to read "Robert Gehman, Jr.", is written over the printed name and title.

Robert Gehman, Jr., P.E.  
President

June 12, 1997



N 30 00 00  
W 96 00 00

MSITE(tm): KUHT

Propagation model: Longley-Rice v1.2.2  
Time: 50.00% Loc: 50.00% Margin: .0 dB  
Climate: Continental Temperate  
Gndcovr: None  
Atm. factor: None  
K Factor: 1.333  
RX Antenna: DA-C:\MSITE\PAT\TESTRECV  
Height: 9.1 mtrs AGL Gain: .0 dBd

C/I ratio - group 1 TXs to group 2 TXs

> 34.0  
< 34.0

Minimum threshold level: -150.0 dBmW

Site	Ant Eiv AMSL (mtrs)	ERPd (dBW)	Ant. Type /Orient.	Coordinates
KUHT1A	584.0	39.24	DA-H	N 29 34 28.00
grp: 2	189.0000 MHz		.0	W 95 29 37.00
KTRE11*	284.0	51.99	DA-H	N 31 25 9.00
grp: 1	189.0000 MHz		.0	W 94 48 2.00

KILOMETERS  
50 0 50

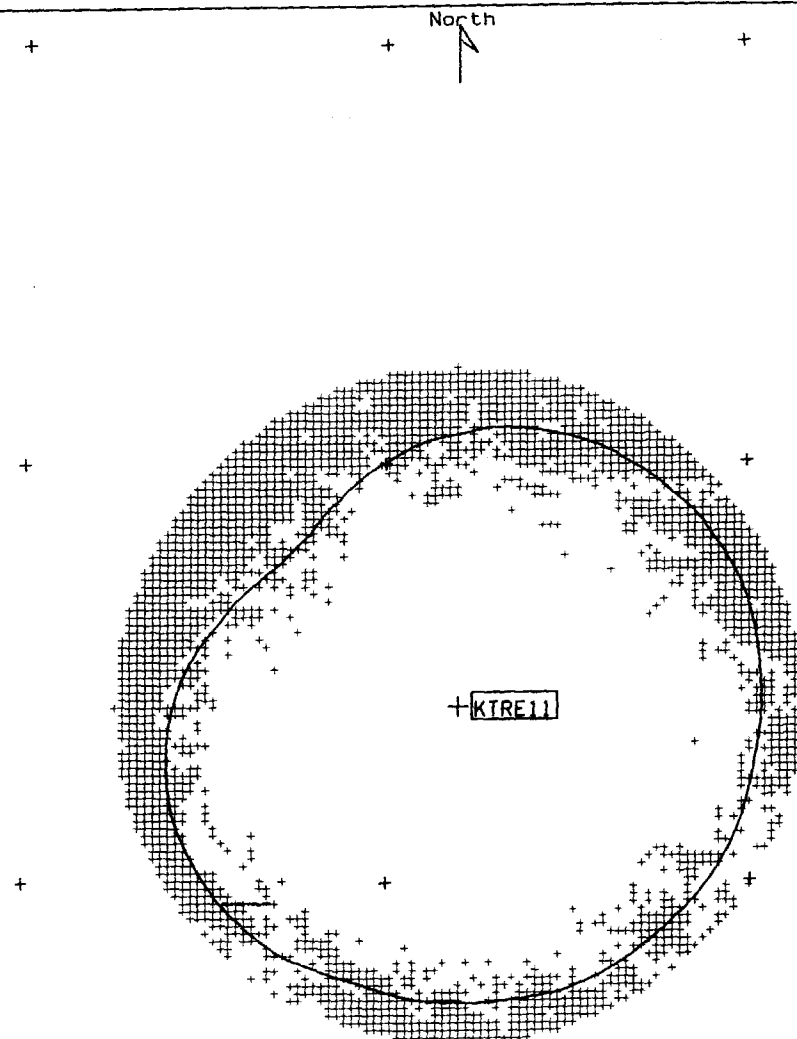
DTV STUDIES

Kessler and Gehman Associates

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Figure 1

Ref. grid: 1 degree



N 30 00 00  
W 96 00 00

Ref. grid: 1 degree

MSITE(tm):kuht

Propagation model: Longley-Rice v1.2.2  
Time: 50.00% Loc: 50.00% Margin: .0 dB  
Climate: Continental Temperate  
Gndcvr: None  
Atm. factor: None  
K Factor: 1.333  
RX Antenna: DA-C:\MSITE\PAT\TESTRECV  
Height: 9.1 mtrs AGL Gain: .0 dBd

Field strength (at remote)

> 56.0 dBuV/m  
< 56.0 dBuV/m

Minimum threshold level: -150.0 dBmW

Site	Ant Elv AMSL (mtrs)	ERPd (dBW)	Ant. Type /Orient.	Coordinates
KTRE11*	284.0	51.99	DA-H	N 31 25 9.00
grp: 1	189.0000 MHz		.0	W 94 48 2.00

KILOMETERS

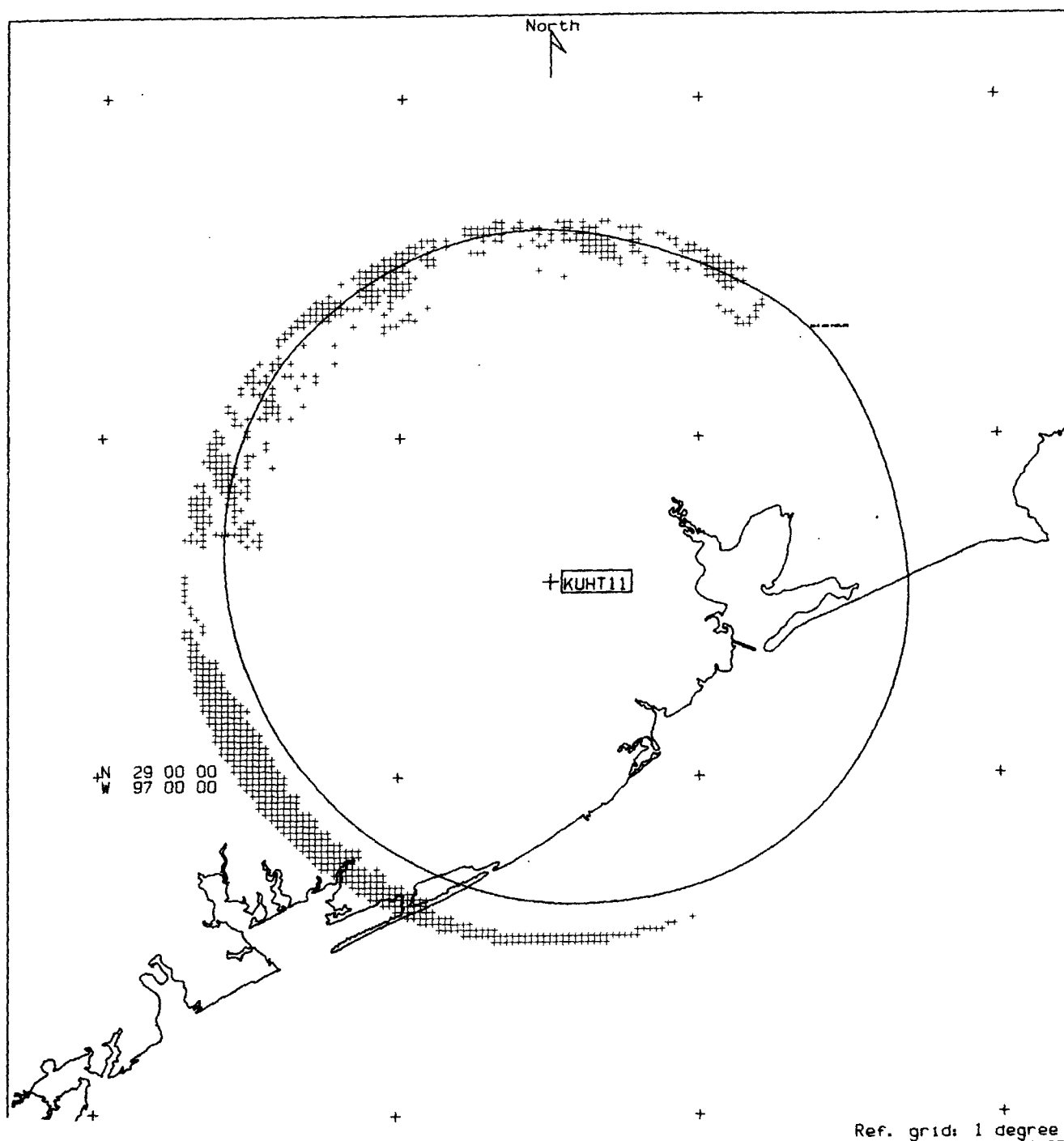
DTV STUDIES

Kessler and Gehman Associates

970500

Figure 2





MSITE(tm): KUHT

Propagation model: Longley-Rice v1.2.2  
 Time: 50.00% Loc: 50.00% Margin: .0 dB  
 Climate: Continental Temperate  
 Gndcvr: None  
 Atm. factor: None  
 K Factor: 1.333  
 RX Antenna: DA-C: \MSITE\PAT\TESTREC  
 Height: 9.1 mtrs AGL Gain: .0 dBd

Field strength (at remote)

☐ > 56.0 dBuV/m  
☐ < 56.0 dBuV/m

Minimum threshold level: -150.0 dBmW

Site	Ant Elv AMSL (mtrs)	ERPd (dBW)	Ant. Type /Orient.	Coordinates
KUHT11*	584.0	55.00	DA-H	N 29 34 28.00
grp: 1	183.0000 MHz		.0	W 95 29 37.00

KILOMETERS  
 50 0 50

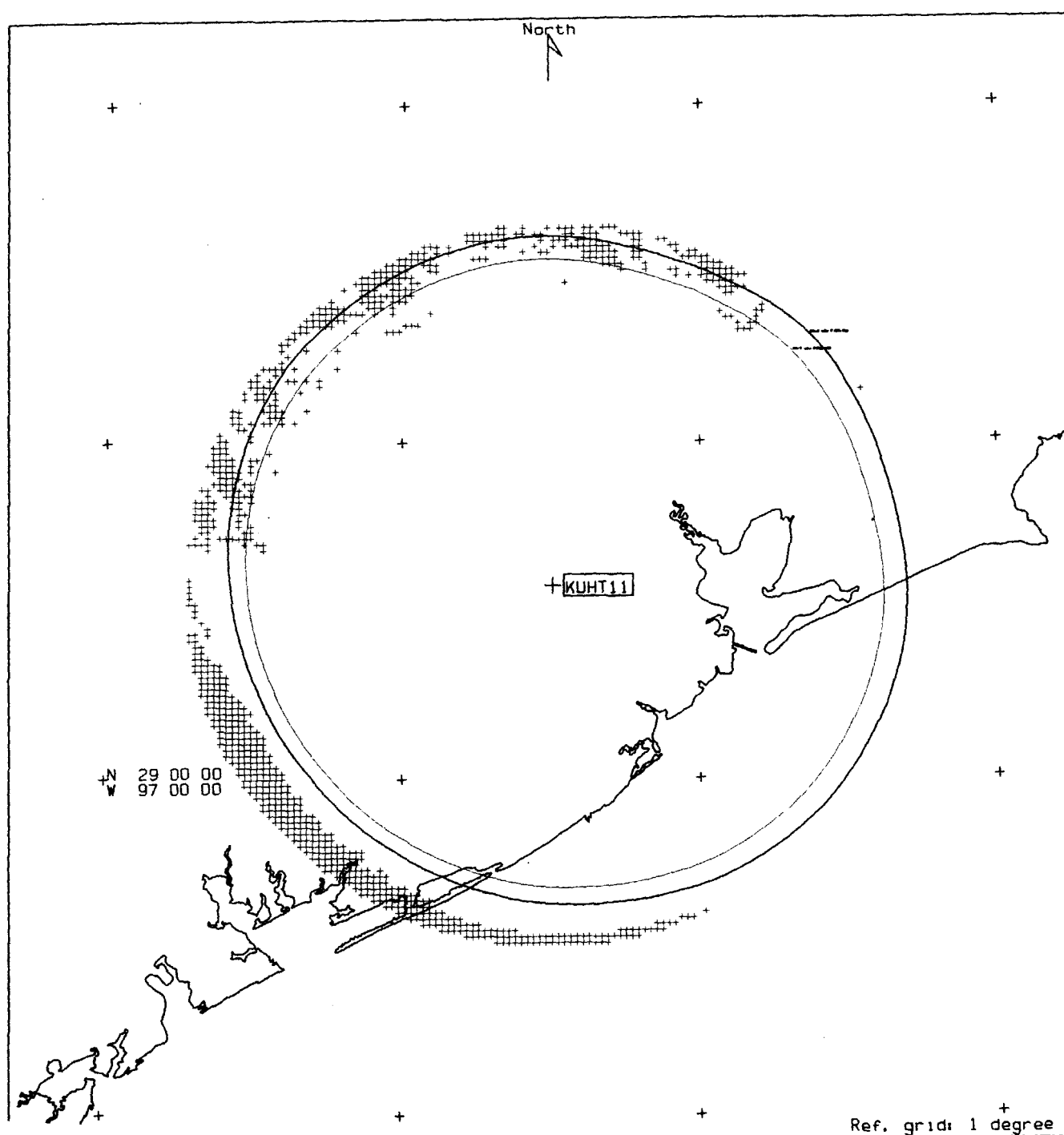
DTV STUDIES

Kessler and Gehman Associates

970500

Figure 3

Ref. grid: 1 degree



MSITE (tm): kuht

Propagation model: Longley-Rice v1.2.2

Time: 90.00% Loc: 50.00% Margin: .0 dB

Climate: Continental Temperate

Gndcvr: None

Atm. factor: None

K Factor: 1.333

RX Antenna: DA-C: \MSITE\PAT\TESTRECV

Height: 9.1 mtrs AGL Gain: .0 dBd

Field strength (at remote)

> 36.0 dBuV/m  
< 36.0 dBuV/m

Minimum threshold level: -150.0 dBmW

Site	Ant Elv AMSL (mtrs)	ERPd (dBW)	Ant. Type /Orient.	Coordinates
KUHT11*	584.0	39.24	DA-H	N 29 34 28.00
grp: 1	189.0000 MHz	.0		W 95 29 37.00

50 0 50

KILOMETERS

DTV STUDIES

Kessler and Gehman Associates

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Figure 4

